

REMARKS

In the Office Action,¹ the Examiner rejected claims 38-41 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,306,940 to Yamazaki ("*Yamazaki*"). Applicants respectfully traverse this rejection.

In order to properly establish that *Yamazaki* anticipates Applicants' claimed invention under 35 U.S.C. § 102, each and every element of each of the claims in issue must be found, either expressly described or under principles of inherency, in that single reference. Furthermore, "[t]he identical invention must be shown in as complete detail as is contained in the . . . claim." See M.P.E.P. § 2131, quoting *Richardson v. Suzuki Motor Co.*, 868 F.2d 1126, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). Applicants respectfully submit that *Yamazaki* fails to teach or suggest each and every element of Applicants' claims.

Independent claim 38 calls for a combination including, for example, "a difference in height from the substrate between a top surface position of said element isolating insulating film and a top surface position of said semiconductor layer is at least three times as large as the thickness of said gate insulating film" (emphasis added). *Yamazaki* fails to disclose at least this claim element.

The Examiner characterizes the combination of silicon oxide film 113, BPSG film 115c, and silicon oxide film 116a of *Yamazaki*'s as corresponding to the claimed "element isolating insulating film"; N type epitaxial layer 103 of *Yamazaki* as

¹ The Office Action contains a number of statements reflecting characterizations of the related art and the claims. Regardless of whether any such statement is identified herein, Applicants decline to automatically subscribe to any statement or characterization in the Office Action.

corresponding to the claimed "semiconductor layer"; and gate oxide film 118 of *Yamazaki* as corresponding to the claimed "gate insulating film." Even assuming the Examiner's characterizations are correct, which Applicants do not concede, *Yamazaki* still fails to disclose the above-quoted claim element.

Applicants previously explained that *Yamazaki* does not teach or suggest the above-quoted claim element in the Amendment After Final filed March 1, 2005 and in the Amendment filed April 1, 2005. However, the Examiner maintained the rejection, stating that Fig. 8F of *Yamazaki* discloses the above-quoted claim element. See Office Action mailed April 21, 2005, page 6. This is not correct.

Figs. 8C to 8F of *Yamazaki* do not provide relative measurements of the difference in height between the top surface of silicon oxide film 116a and the top surface of N type epitaxial layer 103 compared with the thickness of gate oxide film 118. Therefore, these figures cannot provide the necessary dimensions to determine whether the claimed "difference . . . is at least three times as large as the thickness," as recited in claim 38. "When the reference does not disclose that the drawings are to scale and is silent as to dimensions, arguments based on measurement of the drawing features are of little value." M.P.E.P. § 2125, citing *Hockerson-Halberstadt, Inc. v. Avia Group Int'l*, 222 F.3d 951, 956, 55 U.S.P.Q.2d 1487, 1491 (Fed. Cir. 2000). *Yamazaki* does not disclose that its drawings are to scale, and *Yamazaki* is silent as to the dimensions of the difference in height between the top surface of silicon oxide film 116a and the top surface of N type epitaxial layer 103. Therefore, *Yamazaki's* figures cannot constitute a teaching or suggestion of the above-quoted claim element.

Furthermore, *Yamazaki*'s description also fails to provide the necessary dimensions to determine whether the difference in height between the top surface of silicon oxide film 116a and the top surface of N type epitaxial layer 103 is at least three times as large as the thickness of gate oxide film 118. For example, *Yamazaki* discloses that when "the silicon oxide film 116 is deposited . . . , the thickness of the silicon oxide film 116 may be 0.5 μ m or more." *Yamazaki*, col. 13, lines 1-6; see also Fig. 5F. However, *Yamazaki* does not disclose the thickness of silicon oxide film 116a after silicon oxide film 116 has been etched, as shown in Fig. 5G. In addition, *Yamazaki* discloses that the "bottom face of the silicon oxide film 116a . . . is in direct contact with the top face of the BPSG film 115c." *Yamazaki*, col. 11, lines 35-37. However, *Yamazaki* does not disclose the relative position of the top surface of N type epitaxial layer 103 and where BPSG film 115c contacts silicon oxide film 116a. Accordingly, it is impossible to determine from *Yamazaki*'s disclosure the relationships between the difference in height of the top surface of silicon oxide film 116a and the top surface of N type epitaxial layer 103, and the thickness of gate oxide film 118. Therefore, *Yamazaki* fails to disclose "a difference in height from the substrate between a top surface position of said element isolating insulating film and a top surface position of said semiconductor layer is at least three times as large as the thickness of said gate insulating film," as recited in claim 38. For at least the reasons given above, *Yamazaki* fails to anticipate claim 38.

Similarly, independent claims 39 calls for a combination including, for example, "a difference in height from the substrate between a top surface position of said element

isolating insulating film and a top surface position of said semiconductor layer is at least 10 nm." *Yamazaki* also fails to disclose this claim element.

The Examiner argues that col. 15, lines 11-12 of *Yamazaki* teaches the above-quoted claim element. See Office Action, p. 4. This is incorrect. The cited portion of *Yamazaki* discloses "a gate oxide film 118 having thickness of 8-15 nm." This disclosure of the thickness of gate oxide film 118 cannot constitute a teaching or suggestion of "a difference in height from the substrate between a top surface position of said element isolating insulating film and a top surface position of said semiconductor layer is at least three times as large as the thickness of said gate insulating film," at least because, as discussed above, relative dimensions of gate oxide film compared with its surrounding structures cannot be determined by the drawings "[w]hen the reference does not disclose that the drawings are to scale and is silent as to dimensions." M.P.E.P. § 2125 (internal citation omitted). Therefore, *Yamazaki* fails to anticipate independent claim 39.

Furthermore, dependent claims 40 and 41 are also allowable over *Yamazaki* at least by virtue of their dependence from allowable base claims 38 and 39, respectively. Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw the rejection of claims 38-41 under 35 U.S.C. § 102(b) as being anticipated by *Yamazaki*.

Moreover, claims 38 and 39 further recite "the side surface is substantially perpendicular to the top surface of said semiconductor layer." Applicants have previously asserted, in the Amendment filed March 27, 2007, that *Yamazaki* fails to teach or suggest this claim element. The Examiner responds by arguing that the

"Examiner [relies] on silicon oxide film 113, BPSG film 115c and silicon oxide film 116a [excluding field oxide film 110] of Yamazaki in Fig. 8C for the [claimed] element isolating insulating film." Office Action, page 5. However, the Examiner is incorrect in excluding the field oxide film 110 from the combination of silicon oxide film 113, BPSG film 115c, and silicon oxide film 116a when alleging that these structures correspond to the claimed "element isolating insulating film."

Yamazaki discloses "an element isolation region including a LOCOS type field oxide film [110]" (Abstract), "an element isolation region of a semiconductor device, which is composed of a LOCOS type field oxide film [110]" (col. 1, lines 9-11), and "element isolation region . . . includes . . . field oxide film [110] such as LOCOS field oxide film" (col. 1, lines 17-19). *Yamazaki*'s discloses an element isolation region including the LOCOS type field oxide film 110, but *Yamazaki* does not teach or suggest any element isolation region without the field oxide film 110. Therefore, in *Yamazaki*, the field oxide film 110, alone or in combination with other structure(s), functions as an element isolation region. Without the field oxide film 110, the combination of silicon oxide film 113, BPSG film 115c, and silicon oxide film 116a cannot constitute a teaching or suggestion of the claimed "element isolating insulating film."

Furthermore, in *Yamazaki*, the "field oxide film 110 is formed by the LOCOS process." Contrarily, Applicants disclose "an element isolating insulating film of the STI structure." Specification, p. 59, lines 20-21. Accordingly, Applicants' claims 38 and 39 recite "the side surface is substantially perpendicular to the top surface of said semiconductor layer." To clarify the distinction, Applicants amend claims 38 and 39 to recite "the side surface is substantially perpendicular to the top surface of said

semiconductor layer such that a corner portion having a substantially right angle is formed by the top surface of said semiconductor layer and the side surface of said element isolating insulating film projecting above the surface."

For reasons discussed above and in the Amendment filed March 27, 2007, *Yamazaki* fails to disclose the above-quoted claim element at least because the LOCOS type field oxide film 110, illustrated in Fig. 8C of *Yamazaki*, does not have a "side surface . . . substantially perpendicular to the top surface of said semiconductor layer such that a corner portion having a substantially right angle is formed by the top surface of said semiconductor layer and the side surface of said" field oxide film 110 (emphases added). Therefore, *Yamazaki* fails to anticipate claims 38 and 39.

Conclusion

In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration of this application and the timely allowance of the pending claims.

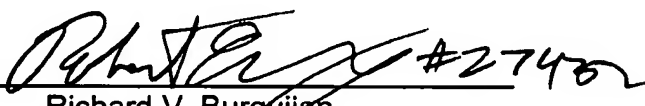
Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: September 11, 2007

By:

 #2740
Richard V. Burguijian
Reg. No. 31,744

fu